FIG. 1

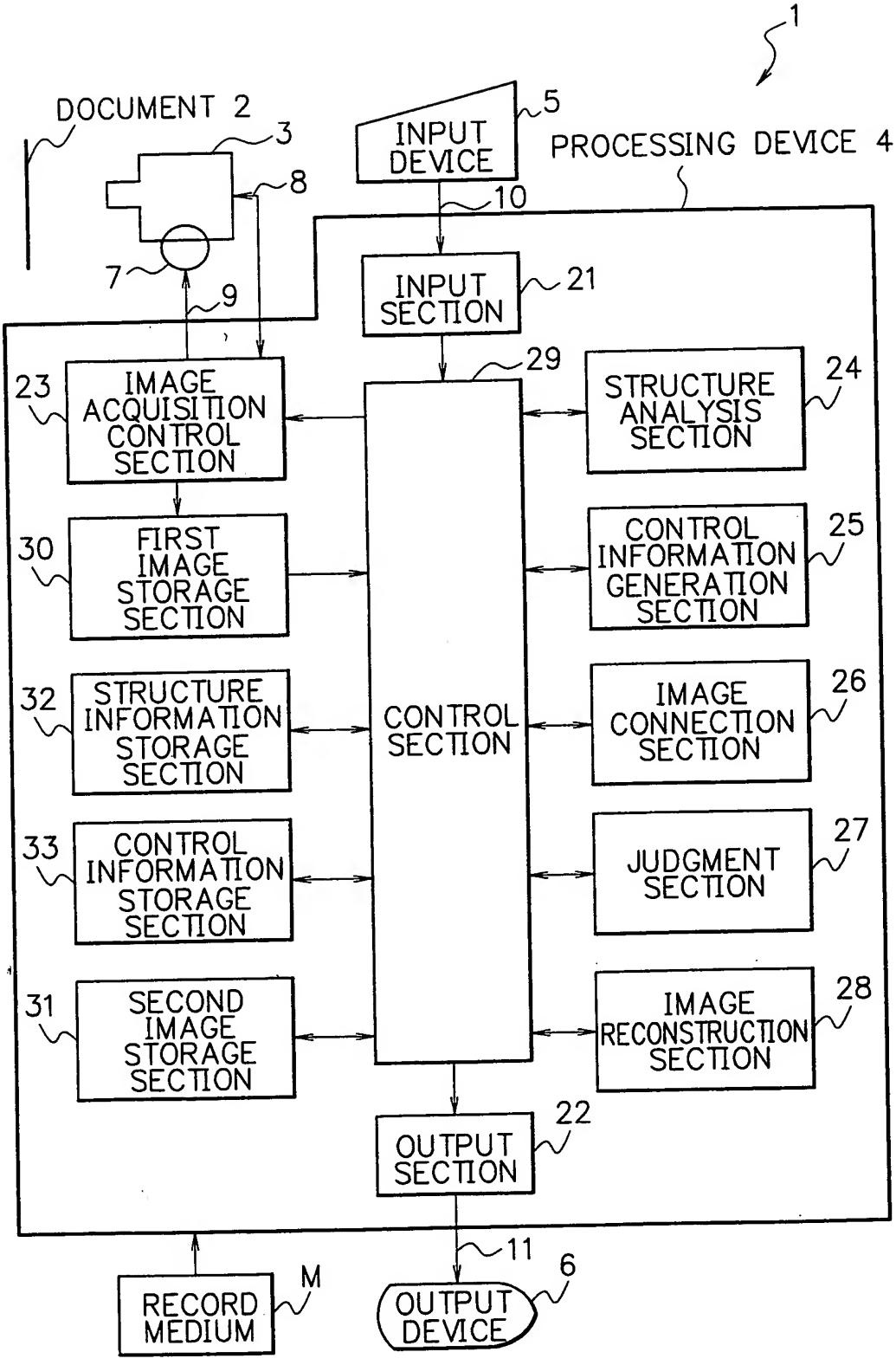
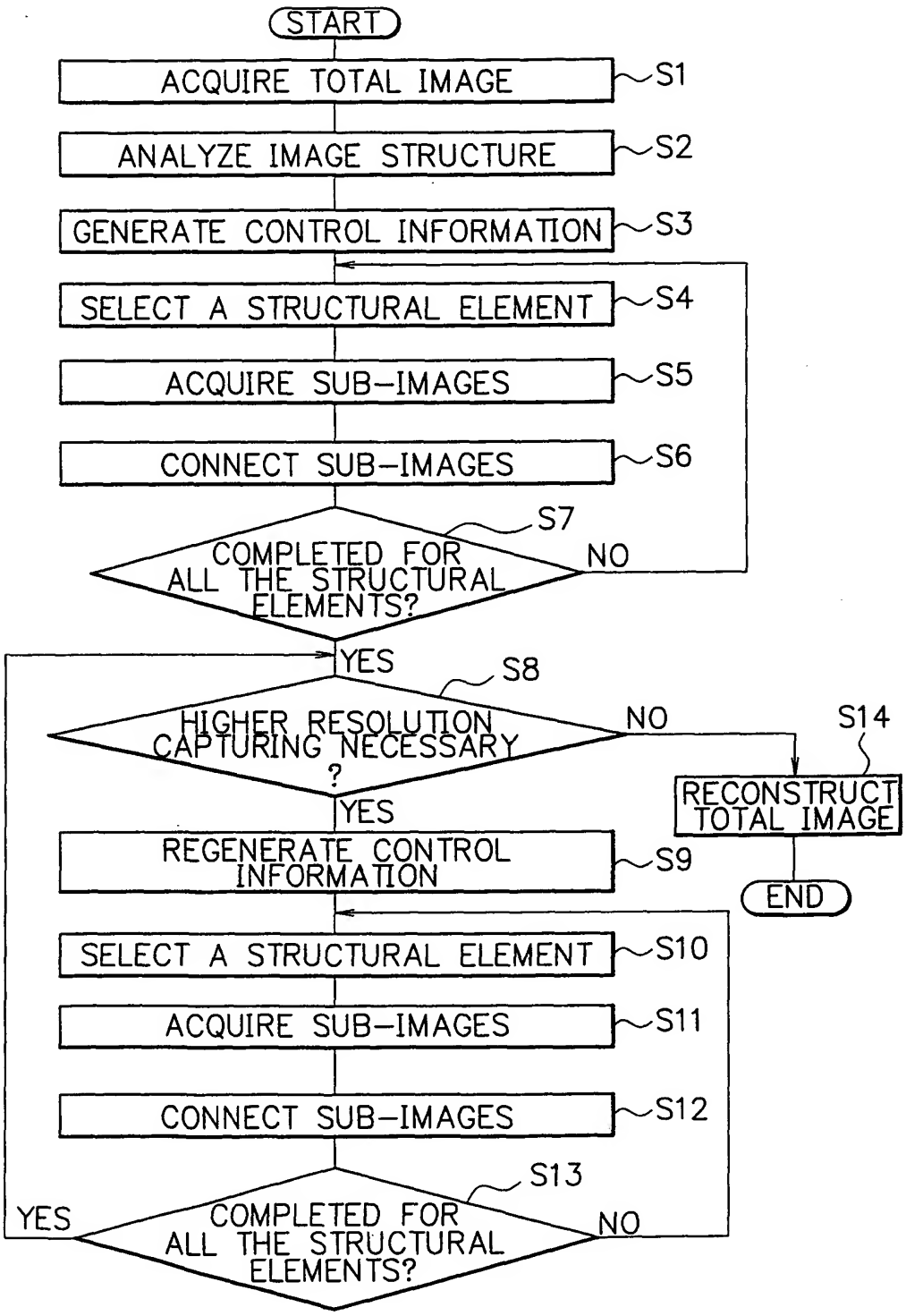

1
DOCUMENT 2
3
8
7
9
INPUT DEVICE
5
PROCESSING DEVICE 4
10
INPUT SECTION
21
29
23
IMAGE ACQUISITION CONTROL SECTION
24
STRUCTURE ANALYSIS SECTION
30
FIRST IMAGE STORAGE SECTION
25
CONTROL INFORMATION GENERATION SECTION
32
STRUCTURE INFORMATION STORAGE SECTION
CONTROL SECTION
26
IMAGE CONNECTION SECTION
33
CONTROL INFORMATION STORAGE SECTION
27
JUDGMENT SECTION
31
SECOND IMAGE STORAGE SECTION
28
IMAGE RECONSTRUCTION SECTION
22
OUTPUT SECTION
11
M
RECORD MEDIUM
6
OUTPUT DEVICE

FIG. 2


START
ACQUIRE TOTAL IMAGE
S1
ANALYZE IMAGE STRUCTURE
S2
GENERATE CONTROL INFORMATION
S3
SELECT A STRUCTURAL ELEMENT
S4
ACQUIRE SUB-IMAGES
S5
CONNECT SUB-IMAGES
S6
S7
COMPLETED FOR ALL THE STRUCTURAL ELEMENTS?
NO
YES
S8
HIGHER RESOLUTION CAPTURING NECESSARY ?
NO
S14
RECONSTRUCT TOTAL IMAGE
END
YES
REGENERATE CONTROL INFORMATION
S9
SELECT A STRUCTURAL ELEMENT
S10
ACQUIRE SUB-IMAGES
S11
CONNECT SUB-IMAGES
S12
S13
COMPLETED FOR ALL THE STRUCTURAL ELEMENTS?
YES
NO

F I G. 3

Document Reconstruction and Recognition

Abstract: A new method for reconstructing a document from an image sequence and recognizing contents of the document is described. In this method, frame images in the image sequence are acquired as partial sub-images by a moving camera.

1. Introduction

Document OCRs have been developed for digitizing documents into character code sequences. As their accuracy increases, new applications are required.Examples of document OCR applications include keyword recognition.

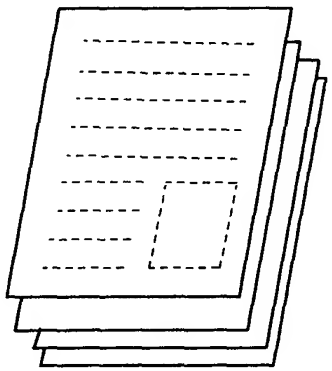
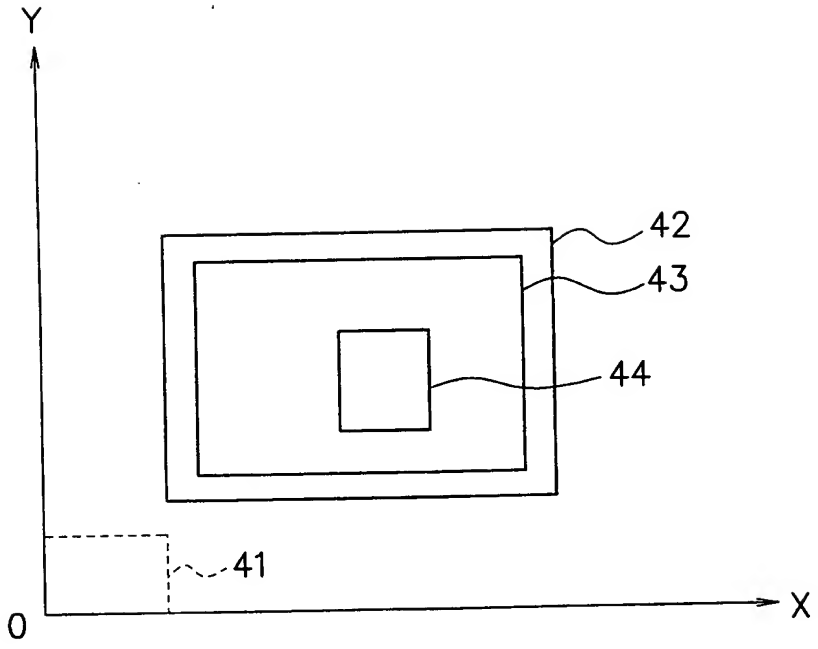


Fig.1 Document

FIG. 4



F I G. 5

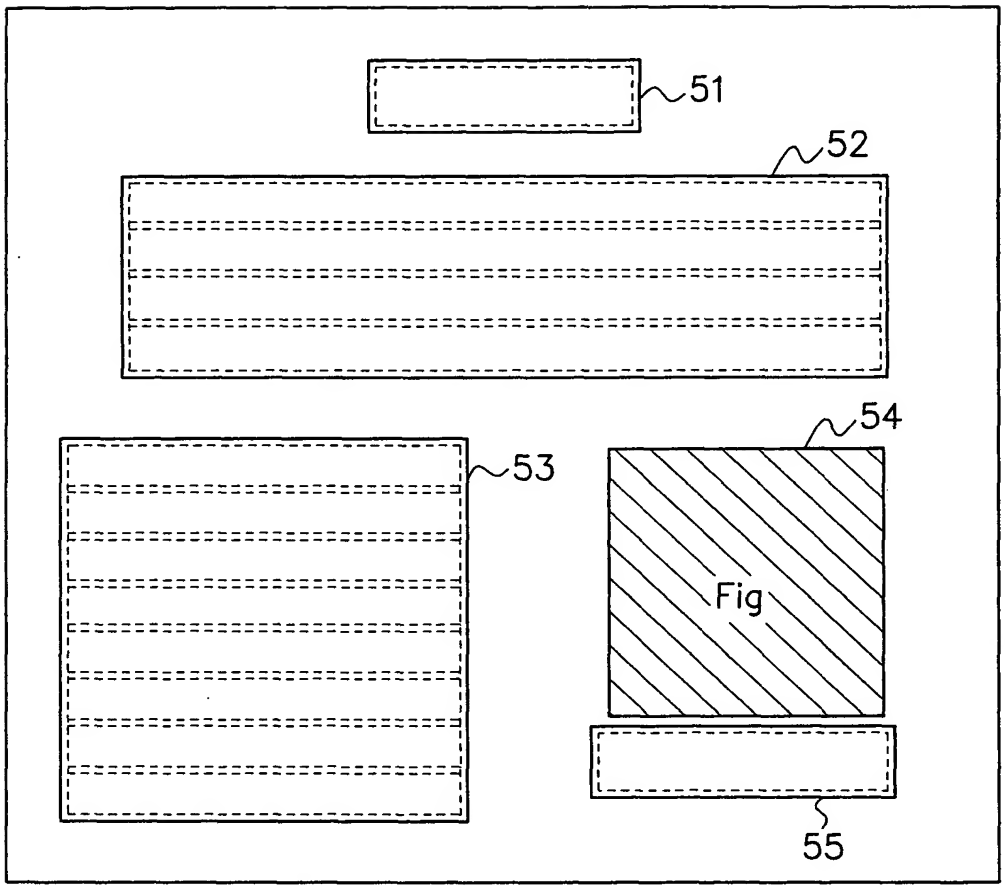


FIG. 6A

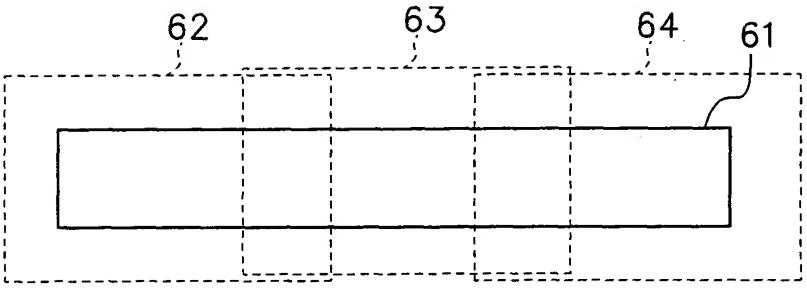
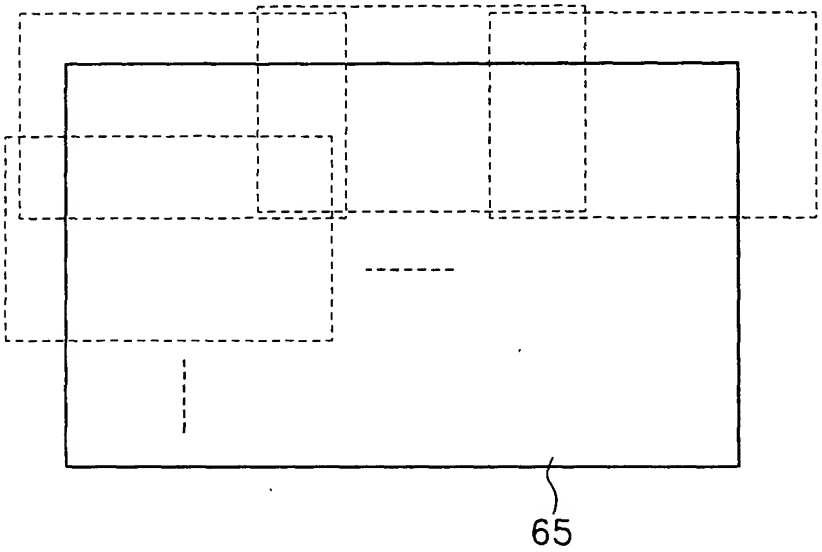


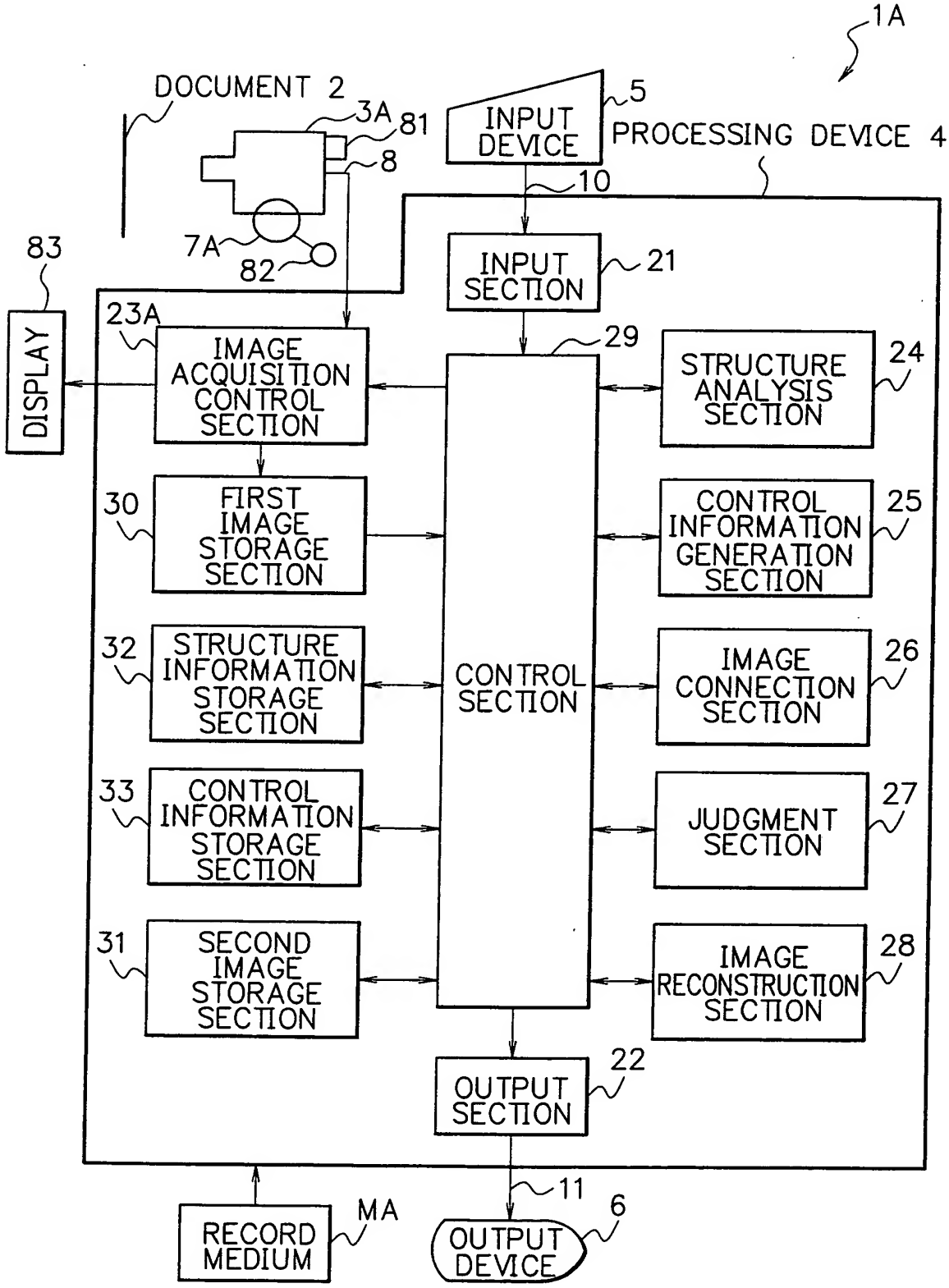
FIG. 6B



F I G. 7

STRUCTURAL ELEMENT 51
ZOOM RATIO
CAPTURING DIRECTION FOR PARTIAL AREA #1
⋮
CAPTURING DIRECTION FOR PARTIAL AREA #m
STRUCTURAL ELEMENT 52
ZOOM RATIO
CAPTURING DIRECTION FOR PARTIAL AREA #1
⋮
CAPTURING DIRECTION FOR PARTIAL AREA #n
STRUCTURAL ELEMENT 53
ZOOM RATIO
CAPTURING DIRECTION FOR PARTIAL AREA #1
⋮
CAPTURING DIRECTION FOR PARTIAL AREA #p
STRUCTURAL ELEMENT 55
ZOOM RATIO
CAPTURING DIRECTION FOR PARTIAL AREA #1
⋮
CAPTURING DIRECTION FOR PARTIAL AREA #q

F I G. 8


1A
DOCUMENT 2
3A
81
8
7A
82
INPUT DEVICE
5
PROCESSING DEVICE 4
10
83
DISPLAY
INPUT SECTION
21
23A
IMAGE ACQUISITION CONTROL SECTION
29
STRUCTURE ANALYSIS SECTION
24
30
FIRST IMAGE STORAGE SECTION
CONTROL INFORMATION GENERATION SECTION
25
32
STRUCTURE INFORMATION STORAGE SECTION
CONTROL SECTION
IMAGE CONNECTION SECTION
26
33
CONTROL INFORMATION STORAGE SECTION
JUDGMENT SECTION
27
31
SECOND IMAGE STORAGE SECTION
IMAGE RECONSTRUCTION SECTION
28
OUTPUT SECTION
22
11
RECORD MEDIUM
MA
OUTPUT DEVICE
6